GEOGRAPHICAL RECORD

AMERICA

A RAILROAD'S FOREST ENTERPRISE. The Canadian Pacific Railway Company for years past has promoted the agricultural development of the Canadian Northwest by establishing experiment stations, demonstration farms, irrigation enterprises and in other ways. The company holds large areas of forest lands in different parts of Canada, notably in British Columbia. *American Forestry* (July, 1911) says that the company has now turned its attention also to forestry. Its purpose is primarily to develop thorough protection for the great forest wealth along the lines of the road. The necessity for this effort has been demonstrated by the enormous destruction among these Canadian forests in 1910 and other recent years. In addition to this work of fire protection the company plans also the establishment of a regular forest service to take charge of certain forest tracts and develop on them a system of forestry suited to the country, to the forest, the land and climate and to the economic conditions of the different regions in which the forests are to be selected. At present the company has in its service a number of educated young foresters in addition to its old staff of experienced timber men.

PROFESSOR BOWMAN IN PERU. Professor Isaiah Bowman is now in Peru as Geologist-Geographer of the Yale Peruvian Expedition of 1911. The general plans of the expedition have already been noted in the *Bulletin* (April, 1911, p. 287). From Santa Ana, in the Urubamba Valley, Professor Bowman's division of the expedition will travel north and east, down river, to the Sepahua or the Mishagua tributaries, ascend one of these, and cross over to the Alto Purus on the Madre de Dios. From a point a short distance east of the eastern border of the Andes a return will be made to Santa Ana and south along the 73rd meridian to the Pacific and eventually to Arequipa, the headquarters of the expedition. The main objects of the geologic and geographic work are: (1) a physiographic study of a belt of country extending from the Amazon basin to the Pacific across the Andine Cordillera; (2) a geologic reconnaissance, including studies of structure and the collection of fossils for the purpose of throwing light on the stratigraphy of this portion of Peru; (3) the effect of exposure, varying precipitation, and declivity upon the position of the snow line; (4) the limits and effects of Pleistocene glaciation; (5) soil and water supply studies in relation to vegetation; (6) a study of the artificial terraces or andenes and their relation to climatic change in the region; (7) anthropogeographic work in the various natural regions traversed, with special reference to the distribution of people. The return to New Haven will be made about December 18th. Mail may be addressed to Arequipa, in care of Grace & Co.

INDUSTRIAL AND PRODUCTIVE LIFE OF PERU. The June number of *Peru To-Day* is devoted to a review of the industrial and productive life of Peru. A great deal of information is presented in condensed form. Official records are supplemented from private sources and some hitherto unpublished statistics are given.

ASIA

MASSACRE OF EXPLORERS. The *Geographical Journal* (May, p. 571) announced the murder of Mr. Noel Williamson, Assistant Political Officer at Sadiya, who was recently killed (date not given) on the Assam-Tibet Borderland by the wild Abors of that region. They also massacred nearly all the members of his party, about 200 in number. Mr. Williamson had hoped to win the friendship of the Abors, and if possible, to trace the unknown course of the Brahmaputra (Dihong) River, which is the lower course of the Tibetan Tsanpo River. It is said that the Abors, while professing peaceable intentions, fell without warning on Mr. Williamson's party, which was practically annihilated.

The part of the Brahmaputra which Mr. Williamson desired to explore is that which Major L. Darwin in his last presidential address before the Royal Geographical Society referred to when he said that "the bend of the Brahmaputra is still drawn by guess work on our maps." About ninety miles of the river through this mountainous frontier region is still unknown because no white explorer or Indian traveler has been able to cross the region through which it passes. The Abor tribes for many years have kept all strangers from traversing their country.

The question of the sources of the Brahmaputra was therefore for many years a geographical conundrum. Native Indian explorers had traced the Tsanpo River in whose valley live most of the Tibetans, to within ninety miles of the known Brahmaputra. There they were stopped by the Abor mountaineers. Some geographers held the view that the Tsanpo was the upper part of the Brahmaputra, while others long affirmed that it was probably the source of the Irawadi River of Burma. It was not till 1886 that explorers conclusively proved that the Iriwadi had no connection with the Tsanpo. They showed that the headstreams of the Irawadi rise far east of the Tsanpo on the slopes of the Nankin Snow Mountains, and that high mountain ranges separate the basins of the two rivers. Some of the Indian explorers marked logs and set them afloat in the Tsanpo, thinking it probable that they would be picked up in the known part of the Brahmaputra. None of these logs seem to have been found in the lower river; but exploration to the east and west of the Abor country at last afforded sufficient evidence that the Tsanpo could be nothing else than the upper part of the Brahmaputra. The ninety mile gap in the river, however, still remains unexplored.

The British have twice sent punitive expeditions against these mountaineers, but the inhospitable tribes are still unconquered. The first white victims of the Abors are believed to have been Krick and Boury, who were killed in 1850.

THE ABSENCE OF RELIGIOUS CONCEPTIONS AMONG THE KUBUS OF SUMATRA. An interesting paper with this title by Prof. W. Volz of Breslau University is published in *Petermanns Mitteilungen* (Vol. 57, I, pp. 288-292). The paper deals with two problems: (1) Is it possible that a part of the Kubus tribe may, in consequence of its environment, have been preserved in its primitive state? (2) Is there a human being totally devoid of even the most rudimentary religious conceptions?

In the discussion of the first problem, Prof. Volz says that the Kubus are a primitive tribe inhabiting the central forest region of southern Sumatra between 2° and 3° S. They number roughly 8,000, but of these by far the greater part have been brought into contact with Malay civilization, and through its in-

fluence are in possession of rudimentary religious concepts. It is only with the small minority who remain in a primitive state that the paper deals. These primitive Kubus live in the interior forest of Sumatra, the central of the three longitudinal provinces into which the southern part of the island is divided. Adjoining it on the N.E. is a zone of mangrove swamps, extending as far as 35 miles inland from the coast. Belonging rather to the domain of the sea than to that of the land, offering food to practically no living creature—the mangrove region is not fit to be the habitation of man.

On the S.W. it gradually merges with the interior forest, which, in its turn, is bounded on the S.W. by the mountain ranges accompanying the western coast of Sumatra, which form the third natural province. Nor is the interior forest an inviting abode for man. For hundreds of square miles it extends in an unbroken, leafy canopy, through which even the birds do not penetrate. Of the Malays who have entered this region on the larger rivers, not a few have perished from want of food, although equipped with gun and ammunition. This, then, is the home of the Kubus. They are extremely few in number. Their life is one of such hardship that it is certain that they have never materially increased in numbers.

Given this environment, Prof. Volz argues that it is highly improbable that the Kubus have ever been affected by the early Malay invasions. Such an inhospitable region is not likely to have been the objective of former migrations. It is only since the advent of the European that the Malays are, by degrees, penetrating into this region under his direction, for the sake of its products, and gradually encompassing the scattered remnants of the tribe, with extinction the inevitable result. All the more reason for prompt action in the study of this primitive people before it is too late.

The state of development of the Kubu is a further argument in favor of the assertion that he has remained in the primitive state. His life is comparable to that of the gibbon, an anthropoid ape that inhabits the same forests as himself. His quest of food is the same. The Kubu is in the lowest stage of economic development, that of the gatherer. He lacks the impulse of the hunter, whose desire to overcome his prey is an important factor in the development of his mental faculties.

Finally, it stands to reason that the complete isolation of the Kubu has dwarfed his mental development. He has lacked the mental stimulus of contact with his fellow-men, be it of a peaceful or antagonistic nature. Prof. Volz feels that the evidence is conclusive that the Kubus who have not come into contact with the Malays have preserved their primitive state of development.

The second question, *viz.*, whether a total lack of religious conception is possible in man, Prof. Volz answers in the affirmative, basing his belief on various theoretical considerations, but more especially on his personal investigation of the Kubus. W. L. G. J.

AUSTRALASIA AND OCEANIA

Exploration of New Guinea. The exploration of New Guinea is advancing rapidly. Although several of the expeditions now in the field have suffered momentary reverses, the experience gained is a guarantee of their ultimate success. The expedition under Capt. Scheffer was forced to abandon its plan of crossing the island from south to north on account of the illness of its leader. It practically completed, however, the survey of the Eilanden River, which

empties into the Arafura Sea in 5°50′ S. lat., tracing it to its source in the central range at an elevation of about 11,500 ft., between Wilhelmina Peak and Juliana Peak, about 60 miles east of the former. In his attempt to reach Carstensz Peak in the central range by way of the Idenburg River, an eastern tributary of the upper Mamberamo, Dr. M. Moskowski inadvertently followed the western tributary, which had already been traveled, and reached the foot of the central range. Compelled to return because of lack of food, he had the misfortune to lose his ethnographic collections and the maps embodying the results of his surveys in a boat accident. Dr. W. Goodfellow, the ornithologist, whose objective was the same peak of the central range, was also forced to desist from his quest on account of illness. The Idenburg River, mentioned above, is being explored by an expedition under Lieut. de Wal, which started last May with a view to determining the feasibility of using this river as a line of attack in the attempt to cross the island from north to south. (*Pet. Mitt.*, 1911, I, pp. 305-306, based on various sources.)

ANTHROPOLOGICAL EXPEDITION TO NEW GUINEA. The University of Oxford is about to send out an anthropological expedition to New Guinea supported by grants from the Common University Fund and a number of the colleges, with contributions also from a few private friends of the expedition. *Nature* (June 15, 1911, p. 530) says that the Committee for Anthropology has selected Mr. D. Jenness of Balliol College to undertake the work of exploration. Mr. Jenness holds the Oxford diploma in Anthropology and has also had practical experience of the conditions of camp life in the bush. He expects to reach Papua in November and his base of operations will be Bwaidoga on Goodenough Island, one of the almost unknown D'Entrecasteaux Group off the southeast coast of New Guinea. He will probably begin his labors with a general survey of this Group, but as soon as he is thoroughly in touch with the natives he hopes to settle down to a detailed study of Goodenough Island in particular.

EUROPE

EXHIBIT OF PLANS OF ROME. An interesting exhibit of plans of Rome showing the development of the city since about 1500, forms a part of the Retrospective Exhibit displayed in the Castle of Saint Angelo in connection with the International Exposition now being held in the Italian capital. The most important piece in the collection is one of three originals of the manuscript Pianta di Roma, drawn by Leonardo Bufalini in 1551. The value of Bufalini's work lies in the fact that his map of Rome represents relief. In the avoidance of the practice, so common to medieval cartographers, of superimposing on the ground-plan, perspective views of prominent buildings, Bufalini is also far in advance of his contemporaries. The following two centuries were a period of retrogression, rather than of advance, as shown by the maps in the collection. A return to Bufalini's methods inaugurates a new era of development marked by the publication, in 1748, of Nolli's map, on which ground-plan and relief are combined. The subsequent maps covering the period up to 1870 do not essentially differ from it in treatment; they show, however, the improvement in methods of reproduction. Some of the newer maps, however, are less satisfactory than the older ones in their representation of relief, a condition brought about by the growth of the built-up areas of the city, which renders it more difficult to effect a satisfactory compromise between the representation

of streets and of topography. This is unfortunate, as with regard to few cities does the topography play so important a part as in the case of the City of the Seven Hills. (*Pet. Mitt.*, 1911, I, pp. 310-311.)

THE LÖTSCHBERG TUNNEL. The new route through the Alps by way of the Lötschberg tunnel will not shorten the routes to Rome from Paris and Germany, but will considerably decrease the mileage from London and Northeastern France. It will be two years yet before trains will be crossing the Bernese Oberland. The nine-mile tunnel is largely the enterprise of Bern. Ever since the completion of the Simplon tunnel in 1905 the business men of the federal capital have felt that other cities of Switzerland were getting most of the local benefit from the roads through the St. Gotthard and Simplon tunnels that connect the rail routes of Italy and north Europe. The St. Gotthard tunnel serves traffic to and from Lucerne, Zurich and Basel and the Simplon is directly connected with Geneva. But Bern, between the two, was isolated from both.

After studying the question of a feasible route that would bring through trains to Bern, it was decided to utilize the railroad extending from Spiez on Lake Thun to Frutigen. It was found that the railroad could be extended from that point without much difficulty up the Kander Valley to Kandersteg. Here began tunneling which took four years and five months. The rest is comparatively easy work, laying the track down the Lötschenthal to the Rhone and up that river to connect with the Simplon tunnel at Brieg. The Lötschberg tunnel is a little shorter than the St. Gotthard, and three miles shorter than the Simplon.

UPPER LIMITS OF FOREST TREES IN SCANDINAVIA. Mr. C. Rabot of *La Géographie* summarizes in that journal for April his own work and that of others relating to the upper limits of forest trees in Scandinavia. He comes to the conclusion that the retreat of these upper limits is to be attributed to a lowering of the summer temperature, which has been estimated at 4.5° F.

POPULATION OF BULGARIA. The population of Bulgaria on Dec. 31, 1910, was 4,329,108, an increase of 7¼ per cent. in five years. The area of the country being 37,200 square miles, the number of inhabitants to the square mile is 116. North Bulgaria had a population of 2,373,649 and a density of 124, South Bulgaria of 1,955,459 and 109, respectively. (*Pet. Mitt.*, Vol. 57, I, p. 302.)

POPULATION OF DENMARK. On Feb. 1, 1911, the population of Denmark was 2,757,076, an increase of 6½ per cent. in five years. Its area being 15,042 square miles, the density of population was 184. With the addition of the Faroe Islands the figures for the entire kingdom are 2,775,076, 15,582 square miles and 179, respectively. The population of Copenhagen, inclusive of Frederiksborg was 559,398, an increase of 8.8 per cent. in five years. The next city in size was Aarhus, with 61,755 inhabitants. Thirteen other cities of Denmark had a population greater than 10,000. (*Pet. Mitt.*, Vol. 57, I, p. 302.)

POLAR

CENSUS OF DANISH GREENLAND. The census of Dec. 31, 1909, shows that the native population of West Greenland is slowly increasing. In 1909 there were 4.4 births and 3.4 deaths among each 100 inhabitants. The population was 12,414, or 94 more than in 1908. The station of Angmagsalik on the east coast in 1909 numbered 554 natives, or nine more than in the preceding year. These facts

are interesting inasmuch as the Eskimo race appears to be decreasing in many parts of its habitat, while under the Danish administration in Greenland the number is augmenting.

AMUNDSEN'S BASE OF OPERATIONS. A letter from Capt. Roald Amundsen dated Feb. 9, 1911, was brought north by the exploring vessel *Fram* and is published in the *London Times* (Weekly Edition, June 9, 1911). He gives the reasons why he made his headquarters on the Barrier Ice a little to the west of Edward VII Land at the point along this remarkable ice wall where Captain James Clark Ross in 1842 observed a large indentation or bay in the wall. In 1900, Borchgrevink, the Norwegian explorer, entered this small bay and thence climbed up to the Barrier Ice surface, which he found stretching southward as a wide, level plain as far as the eye could see. Later this bay was seen by Capt. Scott; and Sir Ernest Shackleton entered it in the course of his expedition of 1908, and named it Bay of Whales. Because this bay had been observed at intervals for over sixty years, Amundsen decided that it must be an enduring formation and would afford a safe harbor in which to unload his expedition.

The day after he sighted the Barrier he reached this bay, which is in about 164° W. Long. His theory of the origin of the bay is that the sea shoals where the bay exists and the mighty glacier was thus forced out on either side, forming thus a great indentation in the ice wall.

The *Fram* was safely moored to the ice in the bay, and on Jan. 16, 1911, the party began to unload the cargo. The house was erected on top of the Barrier Ice, 150 feet above the surface of the bay. The Greenland dogs, 115 in number, picked for their hauling qualities, slowly pulled the heavy laden sledges up to the site. The solidly built house stands safe and secure, sunk four feet down in the snow as hard as rock and supported by back stays on all sides. Amundsen named it "Framheim" and it stands in about 164° W. Long., 78°40′ S. Lat. It is the most southerly habitation yet built in the Antarctic. Fifteen tents were set up around the house for the use of the dogs and as storerooms for food supply, coal, wood, clothing, etc. The food depot contains provisions sufficient for two years. Up to the time the *Fram* left, the party had lived almost entirely on seal meat, which Amundsen writes he would not exchange for any other dish in the world. Seals were found in large numbers and he expected soon to secure an adequate winter supply for his party and the dogs.

"It is my intention," he wrote, "to lay down a main depot in 80° S. Lat., and a smaller one as far south as possible; and I hope that, with the excellent means at our disposal, we shall get to 83° with the smaller depot in the Autumn, before the dark season sets in. I can say nothing more with regard to our future prospects. We shall do what we can."

It thus appears that Amundsen has pitched his headquarters not on land, but on the Barrier Ice itself; that his base station is somewhat nearer the Pole than that of any previous explorer; and that if he succeeds in planting a food depot at 83° S., he will establish food supplies farther south than other explorers have been able to do on their journeys preparatory for their main advance.

ANTARCTIC EXPEDITIONS. The *Geographical Journal* (July, 1911) announces that Mr. Pedro Christofferson, a Norwegian living in Buenos Aires, has offered to bear all the expenses of Capt. Amundsen's *Fram* for provisions and other outfit during the ship's work in the Antarctic, and until the final arrival in San Francisco.

Dr. Mawson, the leader of the projected Australian Expedition, has acquired

a suitable vessel—*Aurora,* built at Dundee in 1876—and the necessary preparations are going forward under the superintendence of Capt. Davis. The equipment will include an aeroplane.

AN EXPEDITION GOING TO CROCKER LAND. While Peary was engaged during a part of 1906 in completing the coast survey of northwestern Grant Land, he saw to the Northwest a region which he named Crocker Land and which is the most northern land yet known to exist on the globe. We learn from the American Museum of Natural History that an expedition has been organized for the scientific exploration of Crocker Land. It will be led by Prof. D. B. Macmillan and Mr. George Borup, who were members of Peary's North Pole party in 1909. It is hoped that Peary's ship, the *Roosevelt,* will be acquired for the expedition, which is expected to cost about $25,000. It is hoped to start north in June next year and, if possible, work the ship north and west to Cape Columbia, which will be the advance base from which the journey to Crocker Land will be made by sledge. The expedition hopes to do a large amount of important work in the locality mentioned, and expects to be away from home about three years. It is said that several scientific bodies and private individuals are contributing financial support. Capt. R. Bartlett is making a trip to Etah this summer to arrange for the men, dogs and food which will be taken on board the exploring vessel in the summer of 1912.

PHYSICAL GEOGRAPHY

SEA WEED IN THE SARGASSO SEA. Dr. John J. Stevenson, who recently sailed across the Sargasso Sea, reports his observations briefly in *Science* (Dec. 9, 1910). He says that the "indefinite descriptions of the area and mass of seaweed, as well as the extraordinary statements made by some authors in discussing the origin of coal, induced the writer to make an examination of the conditions for himself. The matter is easy, because the steamship route between Barbadoes and the Azores crosses the area diagonally and passes very near the center. His own observations, and the information gained from officers who had crossed the Sargasso Sea many times, lead him to think that "much depends on the time of year, for weed appears to accumulate while the Trades are mild and to be broken up later in the season when the strength of the winds increases. In any case, however, the weed occupies only a small part of the area, the patches being separated by wide spaces of clear water, almost free from weed. Many of the bunches show unmistakably that they had been attached to rock; and the plants have traveled far, since in a large proportion of bunches only a part is living, the dead parts being of a brownish color. In passing through the Bahamas the seaweed is found to be "much more abundant than along either of the lines followed across the Sargasso. The weed is evidently the same, being in circular bunches up to 18 inches diameter arranged in strips according to the direction of the wind, though occasionally in bands or even in patches eight by ten feet. The patches are near the large islands.

"At best, the quantity of weed seen at any locality is wholly insignificant. Midway in the Sargasso Sea, the bunches seen in a width of a mile would form, if brought into contact, a strip not more than 65 feet wide. This, where the weed is most abundant. But the bunches are very loose, the plant material, as was estimated, occupying less than one-fifth of the space and if the bunches were brought together so that the plant parts would be in contact, each square mile would yield a strip not more than 13 feet wide and 3 or 4 inches thick,

or barely 2,500 cubic yards to the square mile. . . . The accumulation of decayed vegetable material from seaweeds must be comparatively unimportant under the Sargasso sea; and what there is would be merely foreign matter in mineral deposits."

PERSONAL

Prof. W. M. Davis sailed from New York on July 22 for Queenstown to begin in Ireland the summer field work in physiography, the plans for which were described in the August *Bulletin*. Prof. Mark Jefferson expects to join Prof. Davis's party early in August.

Dr. H. C. Cowles of the Department of Botany, University of Chicago, sailed in June to spend six months in Europe. He will take part in an excursion of plant geographers in England, spend some time in France and Switzerland, and be present at the meeting of the Tenth International Geographical Congress at Rome in October.

Dr. Sven Hedin has been elected a member of the Paris Academy of Sciences.

GENERAL

NEW EDITION OF THE CENTURY ATLAS. The Century Co., New York, announces that a new edition of the Century Atlas will be published in the autumn. This atlas, which forms a part of the Century Dictionary and Cyclopedia, is particularly valuable because of its large-scale maps of the several States and of the Provinces of Canada. Of these regions it can be said to afford the best cartographic presentation among general atlases published by private firms. The following is an extract from the preface to the new edition:

"In the new edition several of the maps, particularly that of Alaska and the different maps of Canada, have been entirely remade, and all the others have been thoroughly revised; the railroads have been brought down to date; incorporated places not included in previous editions of the atlas have been added; the index has been reset and includes the results of the United States census of 1910, and entirely new maps of the South Polar region, of Oklahoma, and of the interurban trolley connections in the north central States, and the northeastern States have been added."

ARIDITY, SALT DEPOSITS AND CURRENCY. The use of blocks of rock salt for building purposes or as currency, in regions of great aridity, is one of the most obvious illustrations of climatic control over human customs. In a recent description of the salt plain which lies to the east of the Abyssinian tableland, Major A. Tancredi (*Boll. Soc. Geogr. Ital.*, Feb., 1911) brings out some striking facts regarding the climate of that district. The plain lies somewhat over 100 meters below sea-level, and forms an area of inland drainage. The mean temperature is about 88° Fahr., and the summer maxima are said to reach 122° Fahr. The salt deposits of the region furnish blocks of rock salt which are used throughout the country as currency by the Abyssinian merchants. These blocks rise rapidly in value towards the more remote western parts of the tableland.

R. DEC. WARD.

PHOTOGRAPHS DESIRED BY THE U. S. WEATHER BUREAU. This Bureau is forming, in its library at Washington, a collection of meteorological photographs and will welcome additions thereto from all parts of the world. It would like photographs of observatories, apparatus, meteorologists, clouds, rainbows, lightning and its effects, etc.